Carnegie Mellon University
School of Computer Science

Dear Prospective Student,

Welcome to Carnegie Mellon University! We hope you're enjoying your visit to campus. If you are receiving this packet through the mail, we hope you find it useful. Included in this packet is information about undergraduate programs offered at Carnegie Mellon University's School of Computer Science. An overview of the programs can be found at https://www.cs.cmu.edu/overview-programs

For complete information regarding the **Bachelor of Science in Computer Science**, visit https://www.csd.cs.cmu.edu/academics/undergraduate/overview, the website for the undergraduate Computer Science Department.

If you have questions about the Computer Science Program, please contact Mary Widom (marywidom@cs.cmu.edu (412)-268-9497) or Amy Weis (alweis@cs.cmu.edu (412)-268-5561).

For information about the new **Bachelor of Science in Artificial Intelligence**, please visit the website: https://cs.cmu.edu/bs-in-artificial-intelligence/

The **Bachelor of Science in Computational Biology** degree is offered through the School of Computer Science, Computational Biology Department. For more information, visit the undergraduate Computational Biology website at http://www.cbd.cmu.edu/education/bs-in-computational-biology/

If you have questions about the Computational Biology Program, please contact Samantha Mudrinich (smudrini@cs.cmu.edu (412)-268-4671).

If you have questions about admissions, financial aid or scholarships, please contact the Office of Admission at 412-268-2082 or send mail to admission@andrew.cmu.edu .

Thank you for your interest in Carnegie Mellon University.

Sincerely,

Mary Widom

Mary Widom
Academic Program Administrator,
School of Computer Science, Undergraduate Computer Science Program
email: marywidom@cs.cmu.edu phone: 412-268-9497

Name _____ **Minor/DM/DD** _____

B.S. in COMPUTER SCIENCE for students entering in Fall 2018 (2018 Audit - 360 units)

15-122	Principles of Imperative Computation				1
15-150	Principles of Functional Programming				2
15-210	Parallel and Sequential Data Structures and Algorithms				3
15-213	Introduction to Computer Systems				4
15-251	Great Theoretical Ideas in Computer Science				5
15-451	Algorithm Design and Analysis				6
15-xxx	Artificial Intelligence (10-401; 11-411; 15-381,386; 16-384,385)				7
15-xxx	Domains (02-250; 05-391; 15-330, 455, 462; 17-313)				8
15-xxx	Logics/Langs (15-312,316,317,414,424; 17-355; 80-413)				9
15-xxx	Software Systems (410, 411, 418, 440, 441, 445)				10
xx-xxx	School of Computer Science Elective				11
xx-xxx	School of Computer Science Elective				12
21-120	Differential and Integral Calculus				13
21-122	Integration and Approximation				14
15-151	Math Foundations for CS (or 21-127 [21-128], Concepts)				15
21-241	Matrices and Linear Transformations (or 21-242, Matrix Theory)				16
xx-xxx	Probability Course (15-359; 21-325; 36-218 or 36-225&226)				17
xx-xxx	Science/Engineering _____				18
xx-xxx	Science/Engineering _____				19
xx-xxx	Science/Engineering _____				20
xx-xxx	Lab Requirement _____				21
	2 Courses from One Department _____				
76-101	Writing				22
76-720	Writing for Professions (or 15-300, Research in CS or 08-200)				23
xx-xxx	Cat. 1: Cognition, Choice, & Behavior				24
xx-xxx	Cat. 2: Economic, Political, & Social Institutions				25
xx-xxx	Cat. 3: Cultural Analysis				26
xx-xxx	Unrestricted Humanities or Fine Arts				27
xx-xxx	Unrestricted Humanities or Fine Arts				28
xx-xxx	Unrestricted Humanities or Fine Arts				29
15-128	First Year IC _____	99-101	Computing @ CM		30
xx-xxx	Elective (Minor/Free)				31
xx-xxx	Elective (Minor/Free)				32
xx-xxx	Elective (Minor/Free)				33
xx-xxx	Elective (Minor/Free)				34
xx-xxx	Elective (Minor/Free)				35
xx-xxx	Elective (Minor/Free)				36

Name _____

B.S. in ARTIFICIAL INTELLIGENCE for students entering in Fall 2018 (2018 Audit - 360 units)

15-151	Math Foundations for CS (or 21-127 [21-128], Concepts)		_____	1
21-120	Differential and Integral Calculus		_____	2
21-122	Integration and Approximation		_____	3
21-241	Matrices and Linear Transformations (or 21-242, Matrix Theory)		_____	4
36-218	Probability Theory for CS (or 15-359/21-325/36-225 & 36-226)		_____	5
36-401	Modern Regression		_____	6
15-122	Principles of Imperative Computation		_____	7
15-150	Principles of Functional Programming		_____	8
15-210	Parallel and Sequential Data Structures and Algorithms		_____	9
15-213	Introduction to Computer Systems		_____	10
15-251	Great Ideas in Theoretical Computer Science		_____	11
07-180	Concepts in Artificial Intelligence (mini)		_____	12
15-381	Intro to AI Representation and Problem Solving		_____	13
10-401	Intro to Machine Learning		_____	14
xx-xxx	Required AI Core Elective (11-411 or 16-385)		_____	15
xx-xxx	Decision Making/Robotics (15-386,483,494; 16-350,362,384)	_____	_____	16
xx-xxx	Machine Learning (10-403; 11-441,485; 36-402)	_____	_____	17
xx-xxx	Perception/Language (11-442,492; 15-387,463; 16-421)	_____	_____	18
xx-xxx	Human-AI Interaction (05-391; 16-467)	_____	_____	19
xx-xxx	School of Computer Science Elective	_____	_____	20
xx-xxx	School of Computer Science Elective	_____	_____	21
xx-xxx	Science/Engineering _____	_____	_____	22
xx-xxx	Science/Engineering _____	_____	_____	23
xx-xxx	Science/Engineering _____	_____	_____	24
xx-xxx	Lab Requirement _____	_____	_____	25
	2 Courses from one department _____			
76-101	Interpretation and Argument		_____	26
xx-xxx	Ethics Elective (16-161; 17-200; 80-249)	_____	_____	27
xx-xxx	Cat. 1: [Cognition] (85-211,213,370,390,408,412,421,426)	_____	_____	28
xx-xxx	Cat. 2: Economic, Political, & Social Institutions	_____	_____	29
xx-xxx	Cat. 3: Cultural Analysis	_____	_____	30
xx-xxx	Unrestricted Humanities or Fine Arts	_____	_____	31
xx-xxx	Unrestricted Humanities or Fine Arts	_____	_____	32
xx-xxx	Unrestricted Humanities or Fine Arts	_____	_____	33
15-128	Freshman IC _____	99-101	Computing @ CM _____	34
xx-xxx	Free Elective _____ _____	_____	_____	35
xx-xxx	Free Elective _____ _____	_____	_____	36

Carnegie Mellon University

University AP Policy

Advanced Placement (AP) Course Credit Assignments

AP Exam	Score	Carnegie Mellon Course Award/Equivalency	CMU Units
Art History	5	60-011, AP Art History	9
Biology	4	03-011, AP 4 Biology	9
	5	03-110, AP 5 Biology (complete the CMU attainment exam	
Calculus AB and subscore	4	21-111, Calculus (for Dietrich College and CFA students only)	10
	5	21-120, Differential and Integral Calculus	10
Calculus BC	5	21-120, Differential and Integral Calculus and 21-122, Integrations, Differential Equations and Approximation	10 & 10
Chemistry	5	09-105, Introduction to Modern Chemistry I	10
Chinese Language & Culture	4	82-011, AP 4 Chinese (completes the Chinese placement test and consult with the Department of Modern Languages Program Coordinator for credit to change to 82-231, Intermediate Chinese I)	12
	5	82-011, AP 4 Chinese (complete the Chinese placement test and consult with Department of Modern Languages Undergraduates Program Coordinator for credit to change to: 82-231, Intermediate Chinese I) and 82-012, AP 5 Chinese (complete the Chinese placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-236, Intensive Chinese Language & Culture). NOTE: With the completion and successful evaluation of an additional 500-word essay, credit for 82-236 could be converted to credit for 82-232, Intermediate Chinese II, for 12 units.	12 & 9
Computer Science A	4	15-110, Principles of Computing	10
	5	15-112, Fundamentals of Programming	12
Computer Science Principles	4 or 5	15,110, Principles of Computing	10
Economics-Micro (alone)	5	No credit – placement only (student may take 73-103 before 73-102)	-
Economics-Micro and Macro	5 on both Exams	73-011, AP Economics (student may take 73-103 before 73-102)	9
English Language and Composition	5	76-011, AP English (must take 76-101 or two of the following half-semester mini courses at CMU: 76106, 76107, 76108)	9
English Literature and Composition	5	76-012, AP English Lit & Comp (must take 76-101 or two of the following half-semester mini courses at CMU: 76106, 76107, 76108)	9
Environmental Science	4 or 5	38-012, AP Environmental Science	9
European History	5	79-011, AP European History	9
French Language & Culture	4	82-013, AP 4 French (complete the French placement test and consult with the Department Modern Languages Undergraduate Program Coordinator for credit to change to: 82-201, Intermediate French I)	9
	5	82-013, AP 4 French (complete the French placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-201, Intermediate French I) and 82-014, AP 5 French A (complete the French placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-202, Intermediate French II)	9 & 9
German Language & Culture	4	82-015 AP 4 German (complete the German placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-221, Intermediate German I)	9
	5	82-015 AP 4 German (complete the German placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-221, Intermediate	9 & 9

		German I) and 82-016, AP 5 German (complete the German placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-222, Intermediate German II)	
Government & Politics: Comparative	4 or 5	84-011, AP Government & Politics: Comparative	9
Government & Politics: US	4 or 5	84-012, AP Government & Politics: US	9
Human Geography	4 or 5	66-011, AP Human Geography	9
Italian Language & Culture	4 5	82-017, AP 4 Italian (complete the Italian placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-261, Intermediate Italian I) 82-017, AP 4 Italian (complete Italian placement test and consult the Department of Modern Language Undergraduates Program Coordinator to convert to 82-261, Intermediate Italian I) and 82-018, AP 5 Italian (complete Italian placement test and consult the Department of Modern Languages Undergraduate Program Coordinator to convert to 82-262, Intermediate Italian II)	9 9 & 9
Japanese Language & Culture	4 5	82-019, AP 4 Japanese (complete the Japanese placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-172, Elementary Japanese II) 82-019, AP 4 Japanese (complete the Japanese placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-172, Elementary Japanese II) and 82-020, AP 5 Japanese (complete the Japanese placement test and consult with Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-271, Intermediate Japanese I)	12 12 & 12
Latin	4 5	66-019, AP 4 Latin 66-019, AP 4 Latin and 66-020, AP 5 Latin	9 9 & 9
Music Theory	4 or 5	57-012, AP Music Theory	9
Physics C – Electricity and Magnetism	5	33-142, Physics II for Engineering Students	12
Physics C – Mechanics	5	33-141, Physics I for Engineering Students	12
Psychology	4 or 5	85-011, AP Psychology	9
Social & Cultural Anthropology	4 or 5	79-016, AP Anthropology	9
Spanish Language	4 5	82-021, AP 4 Spanish (complete the Spanish placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-241, Intermediate Spanish I) 82-021, AP 4 Spanish (complete the Spanish placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-241, Intermediate Spanish I) and 82-022, AP 5 Spanish (complete the Spanish placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-242, Intermediate Spanish II)	9 9 & 9
Spanish Literature & Culture	4 5	82-023, AP 4 Spanish (complete the Spanish placement test and consult with the Department of Modern Languages Program Coordinator for credit to change to: 82-241, Intermediate Spanish I) 82-023, AP 4 Spanish (complete the Spanish placement test and consult with the Department of Modern Languages Program Coordinator for credit to change to: 82-241, Intermediate Spanish I) and 82-024, AP 5 Spanish (complete the Spanish placement test and consult with the Department of Modern Language Program Coordinator for credit to change to: 82-242, Intermediate Spanish II)	9 9 & 9
Spanish Language and Spanish Literature & Culture	5 & 5	82-022, AP 5 Spanish Language (complete the Spanish placement test and consult with the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82-241, Intermediate Spanish I) + 82-024 AP 5 Spanish Literature & Culture (complete the Spanish placement test and consult the Department of Modern Languages Undergraduate Program Coordinator for credit to change to: 82- 242,	9 & 9 & 9

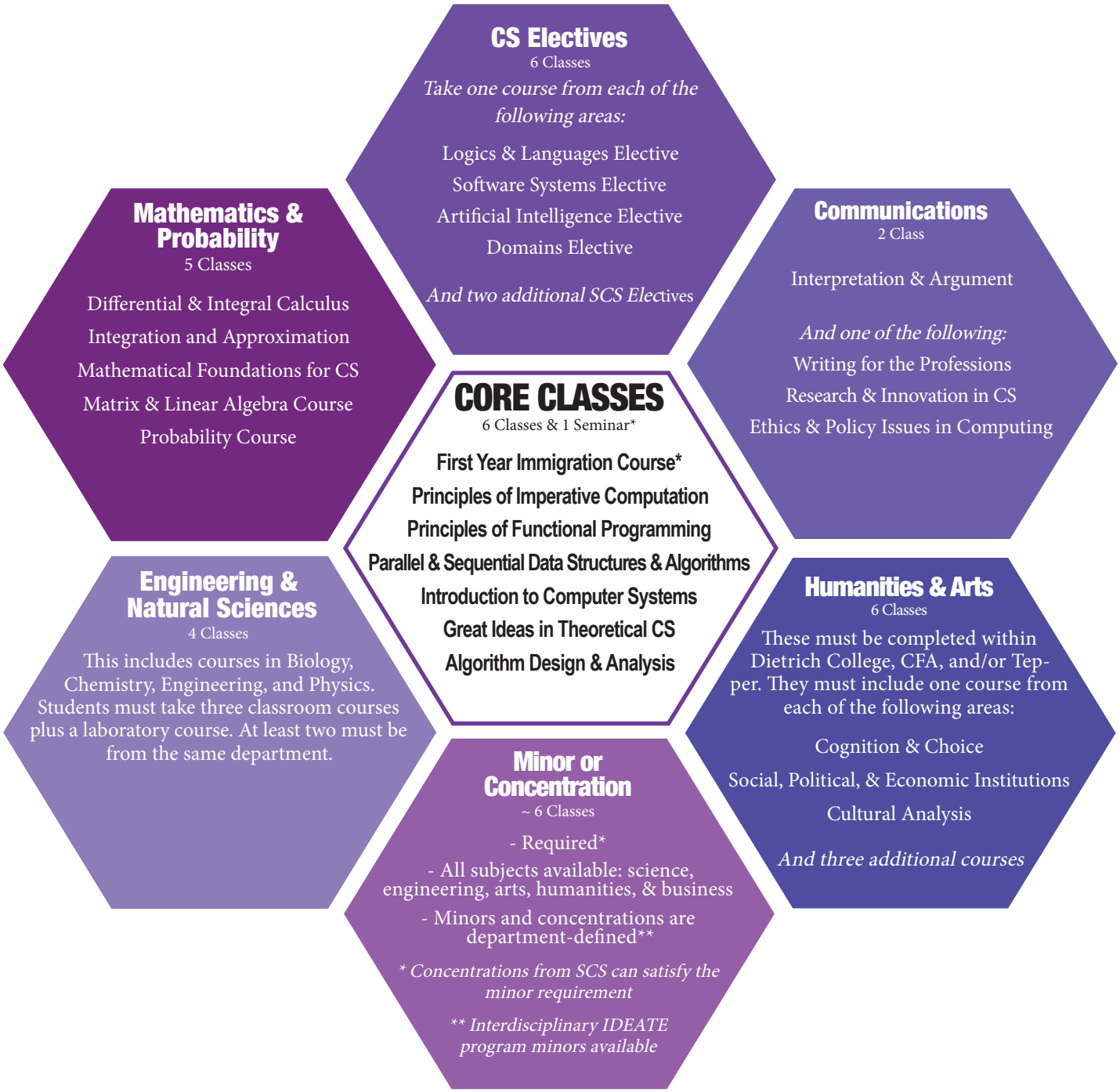
		Intermediate Spanish II) and 82 - 341, Advanced Spanish	
Statistics	4 or 5	36-200, Reasoning with Data	9
Studio Art: 2-D Design	4 or 5	51-011, AP Studio Art: 2-D	9
Studio Art: 3-D Design	4 or 5	51-012, AP Studio Art: 3-D	9
Studio Art: Drawing	5	60-012, AP Studio Art: Drawing	9
United States History	5	79-012, AP United States History	9
World History	5	79-015, AP World History	9

*Exams and scores not listed do not receive credit.

Questions about Carnegie Mellon University's Advanced Placement Credit Policy may be directed to the University Registrar's Office at university-registrars-office@andrew.cmu.edu.

Carnegie Mellon University
School of Computer Science

Computer Science Major
Program Requirements (360 Units)



Carnegie Mellon University
School of Computer Science

B.S. in Computer Science: Sample Course Schedule

Note: For Students With AP Computer Science or College Credit in Introductory Programming

First Year: Fall

Course #	*Units*	*Course Name*
15-122	10	Principles of Imperative Computation
07-128	1	Freshman Immigration Course
15-151	10	Mathematical Foundations for Computer Science
21-120	10	Differential and Integral Calculus
76-101	9	Interpretation and Argument
99-10x	3	Computing Skills Workshop

First Year: Spring

Course #	*Units*	*Course Name*
15-150	10	Principles of Functional Programming
15-251	12	Great Ideas in Theoretical CS
21-122	10	Integration and Approximation
xx-xxx	9	Science/Engineering Course
xx-xxx	9	Humanities and Arts Elective

Sophomore Year: Fall

Course #	*Units*	*Course Name*
15-213	12	Introduction to Computer Systems
21-241	10	Matrices and Linear Transformations
xx-xxx	9	Science/Engineering Course
xx-xxx	9	Humanities and Arts Elective
xx-xxx	9	Minor Requirement/Free Elective

Sophomore Year: Spring

Course #	*Units*	*Course Name*
15-210	12	Parallel and Sequential Data Structures and Algorithms
xx-xxx	9	Computer Science: Domains Elective
xx-xxx	9	Science/Engineering Course
xx-xxx	9	Humanities and Arts Elective
xx-xxx	9	Minor Requirement/Free Elective

Junior Year: Fall

Course #	*Units*	*Course Name*
15-451	12	Algorithm Design and Analysis
xx-xxx	9	Computer Science: Logics/Languages Elective
xx-xxx	9	Technical Communications Course
xx-xxx	9	Probability Course
xx-xxx	9	Minor Requirement/Free Elective

Junior Year: Spring

Course #	*Units*	*Course Name*
15-xxx	12	Computer Science: Systems Elective
xx-xxx	9	Computer Science: AI Elective
xx-xxx	9	Humanities and Arts Elective
xx-xxx	9	Science/Engineering Course
xx-xxx	9	Minor Requirement/Free Elective

Senior Year: Fall

Course #	*Units*	*Course Name*
xx-xxx	9	School of Computer Science Elective
xx-xxx	9	Humanities and Arts Elective
xx-xxx	9	Minor Requirement/Free Elective
xx-xxx	9	Minor Requirement/Free Elective

Senior Year: Spring

Course #	*Units*	*Course Name*
xx-xxx	9	School of Computer Science Elective
xx-xxx	9	Humanities and Arts Elective
xx-xxx	9	Minor Requirement/Free Elective
xx-xxx	9	Minor Requirement/Free Elective

Carnegie Mellon University
School of Computer Science

Artificial Intelligence Major
Program Requirements (360 Units)

Questions? Email us at bsai@cs.cmu.edu

Carnegie Mellon University
School of Computer Science

B.S. in Artificial Intelligence: Sample Course Schedule

YEAR 1

FALL

#	Units	Name
15-122	10.0	Principles of Imperative Computation
21-120	10.0	Differential and Integral Calculus
15-151	10.0	Math Foundation of CS
76-101	9.0	Interpretation & Argument
07-128	1.0	Freshman Immigration
99-10X	3.0	Computing

SPRING

#	Units	Name
15-251	12.0	Great Theoretical Ideas in Computer Science
21-122	10.0	Integration and Approximation
21-241	10.0	Matrices and Linear Transformations
15-150	10.0	Principles of Functional Programming
07-180	2.0	Concepts in AI (mini)

YEAR 2

FALL

#	Units	Name
15-381	10.0	AI: Representation & Problem Solving
21-120	10.0	Parallel & Seq. Data Structures
15-151	10.0	Math Foundation of CS
36-218 *OR* ***15-359***	9.0 12.0	*Probability Theory & Computer Science* ***OR*** *Probability and Computing*
--------	1.0	Science/Engineering Elective
--------	3.0	Ethics Elective

SPRING

#	Units	Name
10-401	12.0	Intro to Machine Learning
15-213	12.0	Intro to Computer Systems
--------	9.0	Humanities and Arts Elective
--------	9.0	Science/Engineering Elective
--------	9.0	Free Elective

YEAR 3

FALL

#	Units	Name
16-385 *OR* ***11-411***	9.0 12.0	*Computer Vision* ***OR*** *Natural Language Processing*
--------	9.0	AI Elective
36-401	9.0	Modern Regression
--------	9.0	Humanities and Arts Elective
--------	9.0	Free Elective

SPRING

#	Units	Name
--------	9.0	AI Elective
--------	9.0	AI Elective
--------	9.0	Science/Engineering Elective
--------	9.0	Humanities and Arts Elective
--------	9.0	Free Elective

YEAR 4

FALL

#	Units	Name
--------	9.0	SCS Elective
--------	9.0	AI Elective
--------	9.0	Science/Engineering Elective
--------	9.0	Humanities and Arts Elective
--------	9.0	Free Elective

SPRING

#	Units	Name
--------	9.0	SCS Elective
--------	9.0	Humanities and Arts Elective
--------	9.0	Humanities and Arts Elective
--------	9.0	Free Elective

Carnegie Mellon University
School of Computer Science

Course of Study Requirements for Artificial Intelligence Majors

Math and Statistics Core:

- Math Foundations of Computer Science**
- Differential and Integral Calculus
- Integration and Approximation
- Matrices and Linear Transformations
- Probability Theory for Computer Scientists
- Modern Regression

Computer Science Core:

- Freshman Immigration Course
- Principles of Imperative Computation
- Principles of Functional Programming
- Parallel and Sequential Data Structures and Algorithms
- Introduction to Computer Systems
- Great Theoretical Ideas in Computer Science

Ethics Elective (1 course from the following):

- Freshman Seminar: Artificial Intelligence and Humanity
- Ethics and Policy Issues in Computing
- AI, Society and Humanity

BSAI students take 7 courses in the Humanities and Arts.* (1 course must be in cognitive science or cognitive psychology):

Examples include:
- Cognitive Psychology
- Human Information Processing and Artificial Intelligence
- Perception
- Human Memory
- Visual Cognition
- Cognitive Modeling
- Language and Thought
- Learning in Humans and Machines
- AI Cluster Electives (4 Courses)

*** General education requirement for SCS Students**
**** If not available, Concepts of Mathematics can be substituted.**

Artificial Intelligence Core:

- Concepts in Artificial Intelligence (Mini)
- Introduction to AI Representation and Problem Solving
- Introduction to Machine Learning

Take one of the following courses:
- Introduction to Natural Language Processing
- Introduction to Computer Vision

Take one course from each of the following areas:

Decision Making and Robotics Cluster
- Neural Computation
- Truth, Justice and Algorithms
- Cognitive Robotics
- Strategic Reasoning for AI (new)
- Planning Techniques for Robotics
- Mobile Robot Programming Laboratory
- Robot Kinematics and Dynamics
- Planning, Execution and Learning

Machine Learning Cluster
- Deep Reinforcement Learning and Control
- Machine Learning for Text Mining
- Introduction to Deep Learning
- Advanced Data Analysis

Perception and Language Cluster
- Search Engines
- Speech Processing
- Computational Perception
- Computational Photography
- Vision Sensors

Human-AI Interaction Cluster
- Designing Human-Centered Systems
- Human-Robot Interaction
- Learning From People (new)
- Design Studio on Intelligent Products and services (new)

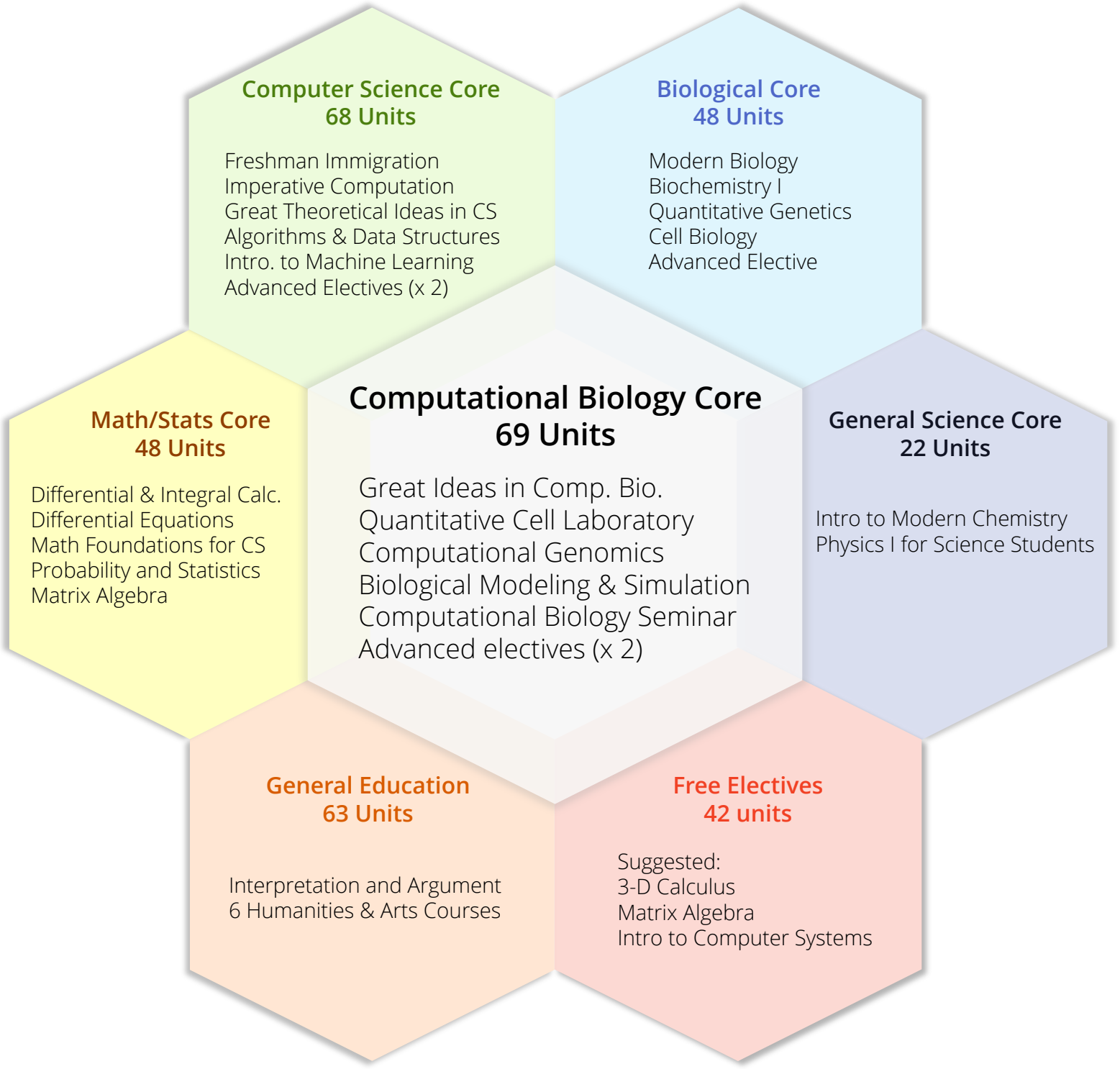
Science and Engineering*:

Students take four courses in Science and Engineering.

Carnegie Mellon University
School of Computer Science

Computational Biology Department

Computational Biology Major Program Requirements (360 Units)



Questions? Email us at bscb@compbio.cmu.edu

http://cbd.cmu.edu

Carnegie Mellon University
School of Computer Science

Computational Biology Department

Computational Biology Major
Sample Course Schedule

Year 1

Differential & Integral Calculus
Imperative Computation
Mathematical Foundations for CS
Interpretation & Argument
SCS Immigration Course
Great Practical Ideas in CS

Great Ideas in Computational Biology
Modern Biology
Integration & Approximation
Intro to Modern Chemistry I
Humanities & Arts Elective

Year 2

Quantitative Cell Lab
Quantitative Genetic Analysis
Physics I for Science Students
Algorithms & Data Structures
Humanities & Arts Elective

Computational Biology Elective
Great Theoretical Ideas in CS
Biochemistry I
Matrices and Linear Transformations

Year 3

Methods for Biological Modeling
Cell Biology
Probability and Statistics
Computer Science Elective
Humanities & Arts Elective

Computational Genomics
Computational Biology Seminar
Intro to Machine Learning
Biology Elective
Humanities & Arts Elective

Year 4

Computational Biology Elective
Computer Science Elective
Humanities & Arts Elective
Free Elective

Humanities & Arts Elective
Free Elective
Free Elective
Free Elective

Questions? Email us at bscb@compbio.cmu.edu

http://cbd.cmu.edu

The Bachelor of Science in **Artificial Intelligence**

Carnegie Mellon University has led the world in artificial intelligence education and innovation since the field was created. It's only natural that its School of Computer Science would offer the nation's first bachelor's degree in artificial intelligence. If you're a high school student who wants to use tools like machine learning, natural language processing, computer vision, robotics and human-computer interaction to improve human lives, **we want you to join us.**

CMUAI | Carnegie Mellon University Artificial Intelligence

AWESOME! TELL ME MORE.

The BSAI program gives you the in-depth knowledge you need to transform large amounts of data into actionable decisions. The program and its curriculum focus on how complex inputs — like vision, language and huge databases — can be used to make decisions or enhance human capabilities. The curriculum includes coursework in computer science, math, statistics, computational modeling, machine learning and symbolic computation. Because CMU is devoted to AI for social good, you'll also take courses in ethics and social responsibility, with the option to participate in independent study projects in areas like healthcare, transportation and education.

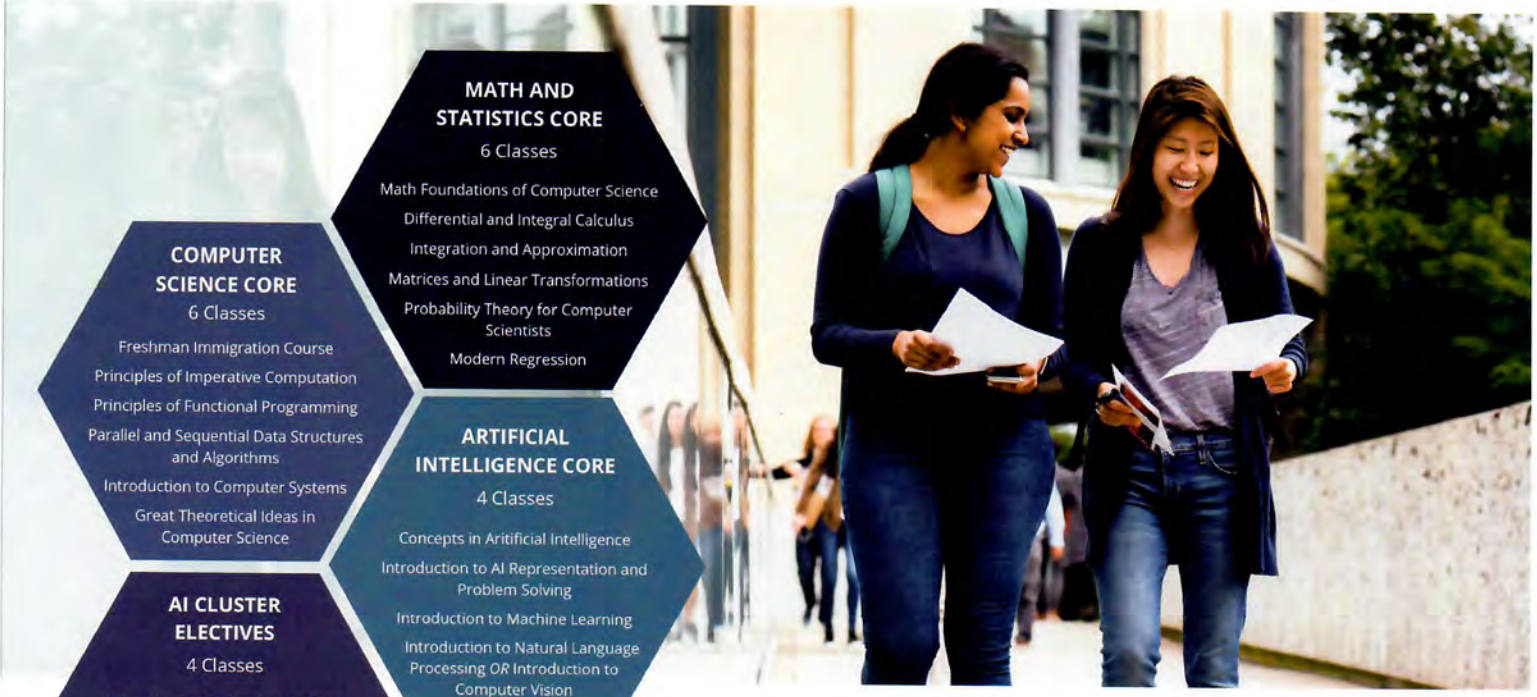
You'll take classes led by faculty members from our Computer Science Department, Human-Computer Interaction Institute, Institute for Software Research, Language Technologies Institute, Machine Learning Department and Robotics Institute.

When you earn a B.S. in AI from SCS, you'll have the computer science savvy and skills our alumni are known for, with the added expertise in machine learning and automated reasoning that you'll need to build the AI of tomorrow.

WHAT KINDS OF CLASSES WILL I TAKE?

BSAI majors take courses in math and statistics, computer science, AI, science and engineering, and humanities and arts. You'll take a course in ethics in AI, and we've built room into the curriculum for academic exploration via electives.

Turn over to see how the curriculum breaks down. ▶



MATH AND STATISTICS CORE
6 Classes

- Math Foundations of Computer Science
- Differential and Integral Calculus
- Integration and Approximation
- Matrices and Linear Transformations
- Probability Theory for Computer Scientists
- Modern Regression

COMPUTER SCIENCE CORE
6 Classes

- Freshman Immigration Course
- Principles of Imperative Computation
- Principles of Functional Programming
- Parallel and Sequential Data Structures and Algorithms
- Introduction to Computer Systems
- Great Theoretical Ideas in Computer Science

ARTIFICIAL INTELLIGENCE CORE
4 Classes

- Concepts in Aritificial Intelligence
- Introduction to AI Representation and Problem Solving
- Introduction to Machine Learning
- Introduction to Natural Language Processing *OR* Introduction to Computer Vision

AI CLUSTER ELECTIVES
4 Classes

Take one course from each of the following areas:

- Decision Making and Robotics Cluster
- Machine Learning Cluster
- Perception and Language Cluster
- Human-AI Interaction Cluster

Plus two SCS electives

SCIENCE AND ENGINEERING
4 Classes

BSAI students take four courses in science and engineering as part of the SCS General Education requirements.

ETHICS ELECTIVE
1 Class

Choose from one of the following:

- Freshman Seminar: Artificial Intelligence and Humanity
- Ethics and Policy Issues in Computing
- AI, Society and Humanity

HUMANITIES AND ARTS
7 Classes

BSAI students take seven courses in the humanities and arts as part of the SCS General Education requirements. Of the seven Humanities and Arts courses in the curriculum, one must be in cognitive science or cognitive psychology.

BSAI majors will take courses in math and statistics, computer science, AI, science and engineering, and humanities and arts. There's also room built into the curriculum for academic exploration via electives.

HOW DO I APPLY?

To enroll in the BSAI program, first you need to be accepted into our School of Computer Science. Once you're at Carnegie Mellon and enrolled in SCS, you can declare a BSAI major in the spring of your first year. Note that space in the major is limited, so acceptance into the BSAI program isn't guaranteed. (Don't worry! You can still earn a B.S. in computer science or computational biology and take a variety of AI courses.)

When you apply to CMU's School of Computer Science, be sure that your personal essay highlights your interest in artificial intelligence and why pursuing a degree in the field is important to you.

What Do I Do Next?

IF YOU WANT TO STUDY AI AT CMU:

1. Apply to Carnegie Mellon University's School of Computer Science by January 1.
2. Include artificial intelligence in your personal essay.
3. Eagerly anticipate your application results in April.
4. If you're accepted, enroll in SCS by May 1.
5. Complete your first semester in SCS.
6. Apply for admission into the BSAI program in the spring of your freshman year.

WHERE DO I GO FOR MORE INFORMATION?

- Applying to CMU: **cmu.edu/apply**
- The BSAI program: **cs.cmu.edu/bsai**
- AI at CMU: **ai.cs.cmu.edu**
- SCS at CMU: **cs.cmu.edu**
- Contact us: **bsai@cs.cmu.edu**

Carnegie Mellon University
School of Computer Science

5000 FORBES AVENUE
PITTSBURGH, PA 15213-3890

SCSatCMU

Carnegie Mellon University
School of Computer Science

CS Degree Statistics 2019

Minors

Animation & Special Effects	3
Art	1
Biomedical Engineering	3
Business Administration	13
Computational Finance	5
Computer Security & Privacy	1
Creative Writing	1
Cybersecurity & Int'l Conflict	1
Discrete Math & Logic	4
Economics	1
Engineering Studies	6
Ethics	1
French/Francophone Studies	1
Game Design	5
German	1
Human-Computer Interaction	15
Japanese	1
Language Technologies	8
Learning Media	2
Linguistics	3
Logic & Computation	1
Machine Learning	34
Mathematical Sciences	20
Media Design	1
Music	4
Neural Computation	3
Physics	5
Robotics	8
Social & Political History	3
Software Engineering	1
Sonic Arts	1
Sound Design	2
Statistics	4

Additional Majors

Business Administration	1
Cognitive Science	2
Computational & Applied Math	1
Discrete Math & Logic	5
Human-Computer Interaction	1
Language Technologies	1
Mathematical Sciences	4
Philosophy	1
Physics	1
Robotics	3
Statistics & Machine Learning	1

Dual Degrees

Cognitive Science	2
Computational Finance	1
Electrical & Computer Eng.	2
Physics	1
Psychology	1

Concentrations
Available now

Algorithms & Complexity
Computational Biology
Computer Systems
Security & Privacy
Software Engineering

Concentrations
Available soon

Human-Computer Interaction
Machine Learning
Programming Languages
Robotics

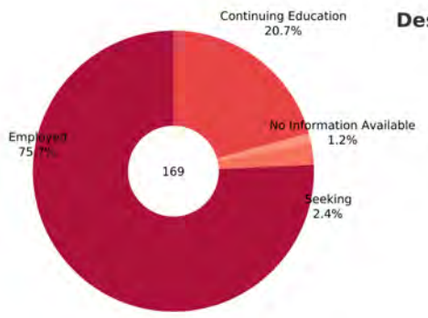
Note: Some students complete more than one minor and/or additional major.

Number of students earning University Honors (cumulative grade point average of at least 3.5)	106
Number of students earning College Honors (completion of a senior honors research thesis)	17
Average grade point average of the graduating class	3.52

CMU First Destination Outcomes

Graduation Year	School or College	Department	Primary Major	Secondary Major
2019	School of Computer Scie..	All	All	All

Note: Hover over the graphics or use the scroll bars below for further insight into the displayed data.



Destination Outcomes

	Number of Records
Employed	128
Continuing Education	35
Seeking	4
No Information Available	2

Employment Destinations

Employer	Job Title	
Adobe	Software Engineer	2
Agot.ai	Founder/CEO	1
Airbnb	Software Engineer	2
Akita	Software Engineer	1
Akuna Capital	Junior C++ Developer	1
Amazon	Software Development Engineer	3
Amazon Robotics	Software Development Engineer	1
Apple	Software Engineer	2
Applied Predictive Technologi..	Software Engineer	1
Bank of America	Quantitative Analyst (Finance)	1
Blend Labs	Software Engineer	1
Capital One	Associate Software Engineer	1
	Technology Development Progr..	1
Carnegie Mellon University	Research Programmer/Analyst	1
Chronicle	Software Engineer	1
Citadel LLC	Software Engineer	1
Clumio, Inc.	Member of Technical Staff	1
	Unknown	1
Comcast	Software Engineer	1
Compass	Software Engineer	1
Datadog	Software Engineer	1
Dataminr	Software Engineer	1
Deck Nine Games	Game Programmer	1
Detroit Tigers	Software Engineer	1
Duolingo	Software Engineer	3
Facebook	Production Engineer	1
	Software Engineer	16

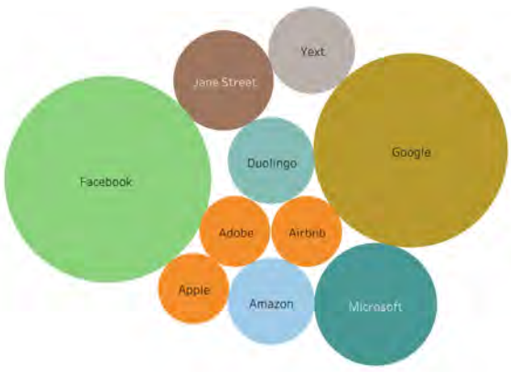
Continuing Education Destinations

School	Degree Program	
California Institute of Tech..	Doctorate - Computation and ..	1
Carnegie Mellon University	Doctorate - Computational Bi..	1
	Doctorate - Computer Science	1
	Masters - Computer Science	13
	Masters - Entertainment Tec..	1
	Masters - Machine Learning	8
	Masters - Natural Language P..	1
	Masters - Robotics	1
Massachusetts Institute of ..	Doctorate - Computer Science	1
Princeton University	Doctorate - Computer Science	1
Stanford University	Doctorate - Applied Physics	1
	Doctorate - Computer Science	1
	Masters - Computer Science	1
University of Illinois Urban..	Doctorate - Computer Science	1
University of Texas	Doctorate - Computer Science	1
Yale University	Masters - Computer Science	1

Top Employment Destinations

*Employers with one graduate will not be displayed.
*Hover over blank bubbles for employer details.

Top Employers
10



Employment Locations

***Use zoom in and out tool on the left side of the map to view international locations.**

Carnegie Mellon University
School of Computer Science

Student Contact List 2019-2020

***Emails should be addressed to @andrew.cmu.edu**

Name	*Class*	*Email**	*CS Interest*	*Minor/Double Major*	*Hometown*
Vidhart Bhatia	2020	vnbhatia	Games	Game Design	Mumbai, India
Akshat Prakash	2020	akshatp	IoT and Mobile Systems	Intelligent Environments	Ghaziabad, India
Rie Ohta	2020	rohta	Product Development	Psychology	San Jose
Ze Xuan Ong	2020	zexuano	Computationally Understanding Language	Machine Learning, Language Technologies	Singapore
Yinglan Chen	2020	yinglanc	Software	Math	Shanghai, China
Ethan Xu	2020	yizhoux	Software, Data Science, ML	Math and Machine Learning	Vancouver, Canada
Joshua Kalapos	2020	jkalapos	Distributed Systems, Low-Level Parallel/Concurrent Computing and Robotics	Robotics	Pittsburgh, PA
Josh Zhanson	2020	jzhanson	Deep Reinforcement Learning	Machine Learning	Issaquah, Washington
Grace Yu	2020	gyyu	PL and Systems	Machine Learning	Oak Hill, Virginia
Ryan Jannak-Huang	2020	rjannakh	Machine Learning, AI	Machine Learning	Palatine, Illinois
Miranda Lin	2021	miranda1	Software Engineering	Software Engineering	Palo Alto, California
Sandhya Bala	2021	sbala	Statistics and Machine Learning	Machine Learning	Singapore
Lisa Lo	2021	llo1	Game Design	Video Game Design	South Brunswick, New Jersey
Gayatri Shandar	2021	gshandar	Language Technologies, Machine Learning, IoT	Social and Political History, Language Technologies, Machine Learning	Bellevue, WA
Christina Chou	2021	cchou1	Machine Learning, Computer Music	Music Techonology	Seattle, Washingtion
Tina Wu	2021	huachenw	Artificial Intelligence	Computational Finance	Livingston, New Jersey
Navya Kalale	2021	nkalale	Theoretical CS, Algorthims, Artificial Intelligence, NLP	Cognitive Science	Fairfax, VA
Justin Kerr	2021	jgkerr	Vision Robotics and AI for Perception	Robotics	Greensboro, NC
Sayan Chaundry	2021	sayanc	Product Development and Design, HCI, Backend Development, AI	Human Computer Interaction	New Delhi, India
Chloe Yan	2021	cyingyun	Machine Learning	Statistics	Singapore

Urvi Agrawal	2021	urvia	Machine Learning	Computational Finance and Machine Learning	India
Joshua Clune	2021	jclune		Philosophy	Fair Lawn, NJ
Olivia Cwik	2021	ocwik	AI, ML, Algorithm Design	Philosophy	LA, CA
Angela Yang	2021	agyang	Artificial Intelligence	Language Technologies	Alpharetta, GA
Alan Lee	2021	soohyun3	Software Development	Video Game Design and Film Studies	Seoul
Parmita Bawankule	2021	pbawanku	AI, Algorithms, and Data Science	Machine Learning	San Jose, CA
Lauren Zhang	2021	laurenz	Entertainment Technology, Graphics, HCI, UX/UI	Ideate Media Design or Ideate Animation	San Diego, CA
Kalpa Anjur	2021	kanjur	Software Engineering, Low-Level Systems	Ideate Video Game Design	Chicago, IL
Emma Liu	2021	emmaliu	Computer Systems and Graphics	Robotics	Chicago
Tianhong Yu	2021	tianhony	Computational Fabrication, Graphics	Physical Computing, Photography	Dalian, China
Kusha Maharshi	2021	kmaharsh	Computer Vision, Natural Language Processing, Math, Teaching	Mathematics	Jaipur, India
Andrea Estrada	2021	arestrad	SWE in Industry	Software Engineering	Los Altos, CA
Samantha Ramnsey	2021	sramsey	Computer Systems	Language Technologies	Palo Alto
Amy Lee	2021	alee3	Software Development, Design	Computational Finance, Design, AI	New York, NY
Peter Wu	2021	peterw1	ML, Natural Language Processing	Math	Cupertino, CA
Neha Sridhar	2021	nksridha	Cybersecurity, AI	Security and Privacy	Troy, Michigan
Rebecca Rovins	2021	rrovins	AI	Hispanic Studies	Moorestown, NJ
Sam Yong	2021	myong	Software, Security, Graphics	Security Concentration, Photography, Discrete Math and Logic	Guangzhou, China
Amanda Steiner	2021	asteiner	Software Development and Systems, Coding Robotics	Robotics of Art	St. Louis, MO and Paducah KY
Ananya Rao	2021	ananyara	Software Development, Applied Robotics, Research and Development	Robotics	Bangalore, India
Jennifer Huang	2021	jjhuang1		Minor	San Jose, CA
Maryia Oreshko	2021	moreshko	Systems and Theory	Discrete Math and Logic	Cherry Hill, NJ
Akhil Nadigatla	2022	anadiget	AI in relation to Agriculture	AI	Nairobi, Kenya
Jiayi Zhang	2022	jiayizha	HCI, Computational Biology	Japanese Language and Studies	Shanghai, China

Carnegie Mellon University
School of Computer Science

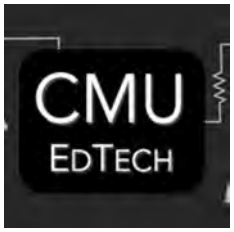
Student Contact List 2019-2020

Kalvin Change	2022	kalvinc	HCI	HCI, Political Science	Hacienda Heights, CA
Nathan Kuo	2023	nkuo	Distributed Computing	Machine Learning	Taipei, Taiwan

Carnegie Mellon University
School of Computer Science

Student Events and Organizations

association for computing machinery at carnegie mellon university



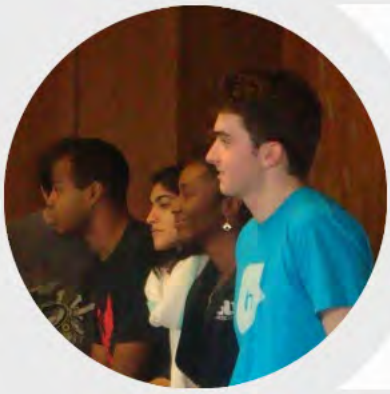
CMU Computer Club

PARTNERED WITH
Women@SCS

SCS4ALL

SCHOOL OF COMPUTER SCIENCE
Carnegie Mellon University

VISIT OUR WEBSITE AT
scs4all.cs.cmu.edu



OUR MISSION

We are an advisory council working to develop a program of social and professional activities and leadership opportunities to sustain and broaden participation in computing. We are committed to expanding and valuing diversity and inclusion in the School of Computer Science and beyond.

COMMUNITY BUILDING

We work to promote diversity and inclusion in the School of Computer Science by developing programs designed by, and for, ALL students. Our programs include socials, professional development activities, and BiasBusters workshops. We provide opportunities for leadership, teaching, and team-building skills.

OUTREACH PROGRAMS

Through our Roadshows and TechNights programs, we aim to expose more K-12 students and educators to the breadth of CS and career opportunities in computing. Through our BiasBusters program we aim to raise awareness and discussion around issues of unconscious bias to develop a more inclusive culture.

CARNEGIE MELLON UNIVERSITY
www.cmu.edu

WOMEN @ SCS

WHO WE ARE

We are a professional organization of faculty, graduate and undergraduate students in Carnegie Mellon's School of Computer Science. We work to create, encourage, and support academic, social, and professional opportunities for women in CS and to promote the breadth of the field and its diverse community.

WHAT WE DO

- Big & Little Sisters Mentoring
- Graduate Sisters Mentoring
- Peer-to-Peer Course Advice
- Scholarship Opportunities
- Leadership & networking
- Resume Building Workshops
- Interview Prep Workshops
- Start-Up Opportunities
- Faculty & Student Luncheons
- Invited Speaker Events
- Social Activities and Fun!

HOW WE OUTREACH

TechNights

Since 2005 - free weekly workshops providing hands on technology skills for middle school girls

Outreach Roadshow

Since 2003 - a fun and interactive presentation for K-12 students, parents, teachers aimed at broadening understanding of CS

OurCS: Opportunities for Undergrad Research in CS

A first of its kind research focused conference for undergraduate women in CS from across the nation and beyond

Carnegie Mellon University

Dr. Carol Frieze
Director, Women@SCS, SCS4ALL
School of Computer Science, Carnegie Mellon
cfrieze@cs.cmu.edu

women.cs.cmu.edu

Carnegie Mellon University
School of Computer Science

SCS Contact Information 2019-2020

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412-268-5576

Tom Cortina - Assistant Dean for Undergraduate Education
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412-268-3514

Veronica Peet – First Year Student Advisor, Computer Science Department
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412-268-3750

Mary Widom - Undergraduate Program Administrator, Computer Science Department
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Samantha Mudrinich – Undergraduate Program Coordinator, Computational Biology
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Gary Dilisio – Information Systems
gdilisio@andrew.cmu.edu
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